IN THE CLAIMS

Claims 1-12 are amended, and new claims 13-20 are added. All claims as currently pending are provided by way of the attached document entitled AMENDED CLAIMS in Serial No. 07/734,188.

To cover the fee for the fourth independent claim, a check (#4051) for $36.00 is enclosed herewith.

REMARKS

Examiner rejected unamended claims 1-11 under 35 USC 103 as being unpatentable over Sridharan.

Applicant traverses these rejections for the following reasons.

(a) Exemplary claim 8 includes:

"a leakage transformer".

This feature is neither disclosed nor suggested by Sridharan.

(b) Exemplary claim 5 includes:

"a transformer having a ferro-magnetic core ... having a main plane ... parallel with the direction of the magnetic flux in the ferro-magnetic core ... the transformer being positioned such that the main plane ... is substantially perpendicular to ... the longitudinal axis".

Sridharan neither discloses nor suggests this feature.

In fact, Sridharan discloses a transformer having a ferro-magnetic core with a main plane parallel with the longitudinal axis.

There is not the slightest hint in Sridharan to the effect that there might be a benefit associted with so orienting the transformer.

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1. (Amended) An electronic ballast comprising:

a ballast housing means having a shape substantially like that of a parallelepiped; the housing having: (i) a mostly flat rectangular bottom wall, (ii) a mostly flat rectangular top wall, the top wall being substantially parallel with the [bottomg] bottom wall, (iii) a mostly flat first side wall, (iv) a mostly flat second side wall, the second side wall being substantially parallel with the first side wall, (v) a mostly flat first end wall, (vi) a mostly flat second end wall, and (vii) a longitudinal axis; the rectangular bottom wall and the rectangular top wall each having a pair of long sides and a pair of short sides; the length of each of the long sides being substantially longer than the length of each of the short sides; the long sides of the bottom wall being parallel with the longitudinal axis;

electronic circuitry; and

a transformer having a ferro-magnetic core; the ferro-magnetic core being characterized as having a main plane; the main plane being parallel with the direction of the magnetic flux in the ferro-magnetic core;

the electronic circuitry and the transformer being mounted within the ballast housing; the transformer being positioned such that the main plane of the ferro-magnetic core is substantially perpendicular to the longitudinal axis [plane of the bottom wall].

2. The ballast of claim 1 wherein the transformer generates a substantial amount of magnetic leakage flux.

3. The ballast of claim 1 where at least one of the walls is electrically conductive.

4. The ballast of claim 1 wherein at least one of the walls is made of steel.

5. (Amended) The ballast of claim 1 wherein the electronic circuitry is characterized by including an inverter connected with a source of DC voltage and operative to supply an AC voltage [the main plane is disposed perpendicularly to the longitudinal axis].

6. The ballast of claim 1 wherein the ballast housing is made of ferro-magnetic material.

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7 ~~8~~. An electronic ballast comprising:

a ballast housing means having an outer surface shaped like a cylinder of a certain length and with a substantially rectangular cross-section; the length being substantially longer than the largest dimension of its rectangular cross-section; the housing means having: (i) a first rectangular relatively wide wall; (ii) a second rectangular relatively wide wall, this second relatively wide wall being approximately of the same size and shape as the size and shape of the first rectangular relatively wide wall, as well as being substantially parallel with the second rectangular relatively wide wall; (iii) a first rectangular relatively narrow wall; (iv) a second rectangular relatively narrow wall, this second relatively narrow wall being approximately of the same size and shape as the size and shape of the first rectangular relatively narrow wall, as well as being substantially parallel to the first rectangular relatively narrow wall; (v) a cylindrical axis disposed parallel with all the walls of the housing means;

electronic circuitry; and

a leakage transformer having a ferro-magnetic core; the ferro-magnetic core being characterized as having a main plane; the main plane being parallel with the direction of the magnetic flux lines in the ferro-magnetic core; the leakage transformer generating a substantial amount of magnetic leakage flux;

the electronic circuitry and the leakage transformer being mounted within the housing means; the leakage transformer being positioned such that the main plane of its ferro-magnetic core is substantially perpendicular to the plane of the first rectangular relatively wide wall.

8 ~~9~~. The electronic ballast of claim 7 ~~8~~ wherein the main plane of the ferro-magnetic core is disposed perpendicularly to the cylindrical axis.

9 ~~10~~. The electronic ballast of claim 7 ~~8~~ wherein at least parts of the walls are electrically conductive.

10 ~~11~~. The electronic ballast of claim 9 ~~10~~ wherein the ballast housing means includes a substantial amount of steel.

11 ~~12~~. The electronic ballast of claim 7 ~~8~~ wherein at least part of the walls is made of metal.

12
~~13~~. An electronic ballast operative to supply lamp power to a gas discharge lamp and comprising:

Cont. 03

a ballast housing means having an outer surface shaped like a cylinder; the cylinder having a length, a cylindrical axis, and a cross-section; the length being substantially longer than the largest dimension of the cross-section;

electronic circuitry; and

a leakage transformer having a ferro-magnetic core; the ferro-magnetic core being characterized as having a main plane; the main plane being parallel with the direction of the magnetic flux lines in the ferro-magnetic core; the leakage transformer having a primary winding and a secondary winding, and being operative to transfer at least part of the lamp power from the primary winding to the secondary winding;

the electronic circuitry and the leakage transformer being mounted within the housing means; the leakage transformer being positioned such that the main plane of its ferro-magnetic core is substantially perpendicular to the cylindrical axis.

13 12
~~14~~. The electronic ballast of claim ~~13~~ wherein the main plane of the leakage transformer is substantially parallel with the direction of most of the magnetic flux lines in the ferro-magnetic core.

14 12
~~15~~. The electronic ballast of claim ~~13~~ wherein the lamp power is supplied to the gas discharge lamp in the form of a high-frequency current; the fundamental frequency of the high-frequency current being substantially higher than that of the power line voltage on an ordinary electric utility power line.

15 12
~~16~~. The electronic ballast of claim ~~13~~ wherein: (a) the electronic circuitry is characterized by including an inverter operative to convert a DC voltage into an AC voltage; and (b) the AC voltage having a cycle period during which its magnitude: (i) remains at a substantially constant negative level all during a first time period, (ii) increases at a substantially constant rate all during a second time period, (iii) remains at a substantially constant positive magnitude all during a third time period, and (iv) decreases at a substantially constant rate all during a fourth period; the sum of the four time periods being equal to the total duration of the cycle period; the duration of the first time period being distinctly shorter than half the total duration of the cycle period.

16 15
~~17~~. The electronic ballast of claim ~~16~~ wherein the duration of the second time period is about equal to or longer than one tenth the duration of the first period.

cont 17 13

17 12
~~18~~. The electronic ballast of claim ~~13~~ wherein the cross-section is substantially of rectangular shape.

18
~~19~~. An electronic ballast operative to supply high-frequency lamp current and lamp power to a gas discharge lamp; the fundamental frequency of the high-frequency lamp current being substantially higher than that of the power line voltage on an ordinary electric utility power line; the electronic ballast comprising:

a ballast housing means having an outer surface shaped like a cylinder; the cylinder having a length, a cylindrical axis, and a substantially rectangular cross-section; the length being substantially longer than the largest dimension of the cross-section;

electronic circuitry characterized by including an inverter operative to convert a DC voltage into an AC voltage; and (b) the AC voltage having a cycle period during which its magnitude: (i) remains at a substantially constant negative level all during a first time period, (ii) increases at a substantially constant rate all during a second time period, (iii) remains at a substantially constant positive magnitude all during a third time period, and (iv) decreases at a substantially constant rate all during a fourth period; the sum of the four time periods being equal to the total duration of the cycle period; the duration of the first time period being distinctly shorter than half the total duration of the cycle period; and

a leakage transformer characterized by:

(a) having: (i) a ferro-magnetic core including a gap, (ii) a primary winding, and (iii) a secondary winding; and

(b) being operative to transfer at least a substantial part of the lamp power from the primary winding to the secondary winding.

19 18
~~20~~. The electronic ballast of claim ~~19~~ wherein the ferro-magnetic core is characterized by having: (i) a main plane disposed parallel with the cylindrical axis, and (ii) an air gap characterized by being bounded by two substantially flat surfaces, one of which surfaces being disposed perpendicularly to the main plane.